Topics in this sample are as follows:

- Capital Budgeting Decision Rules (IRR, MIRR, NPV)
- Decomposition of Returns in Stock Valuation
- Decomposition of Returns in Bond Valuation

**Question 1: (Stock Valuation)** A company with a stock price $P_0 = $21 had a constant dividend growth rate last estimated to be $g = 5\%$. Suppose now that the market updated its beliefs on the constant dividend growth rate and it is now estimated to be only $g^{new} = 2\%$. After this new estimate the stock price went down to $P^{new}_0 = $17. The required rate of return on the market is $r_m = 8\%$ and the risk-free rate is $2\%$ and did not change.

What is the last dividend $D_0$ of the company? (Hint: Before and after the evaluation, the beta of the stock, $r_m$ and $r_{RF}$ all remained the same, which implies that return on the stock $r_s$ remained the same. So write two equations for $r_s$ before and after the re-evaluation and equate them to solve for $D_0$.

\[
\frac{D_0(1 + g_{old})}{P^{old}_0} + g_{old} = \frac{D_0(1 + g_{new})}{P^{new}_0} + g_{new}
\]

\[
\frac{D_0(1 + 0.05)}{21} + 0.05 = \frac{D_0(1 + 0.02)}{17} + 0.02
\]

\rightarrow D_0 = $3

**Question 2: (Modified IRR)**

A company is considering to undertake a project which requires an initial investment of $170,000. The project is expected to provide annual cash flows of $100,000 in each of the next 2 years. The company is using the MIRR method to evaluate this investment. The company’s capital structure is $39\%$ internal equity and $61\%$ debt. The cost of internal equity is $r_e = 9\%$ and the cost of debt is $r_d = 14\%$. The company has a tax rate of $24\%$. What is the MIRR for this project and should the company go for it?

\[
WACC = (0.39)(0.09) + 0.61(0.14)(1 - 0.24) = 10\%
\]
\[ FV = 100,000(2.10) = 210,000 \]
\[ (1 + MIRR)^2 = \frac{210,000}{170,000} \Rightarrow MIRR = 11.14\% > WACC \Rightarrow ACCEP'T \]

**Question 3: (IRR)** Consider a company which uses internally generated equity to finance its capital budget. The company uses CAPM to compute its cost of capital and uses IRR method to evaluate projects. Company is considering a 2-year project which requires a date 0 outlay of $65,040 and generates $40,000 in each of the following 2 years (i.e. Year 1, Year 2 cash flows are both $40,000). The risk free rate is 5\% and market risk premium \((r_m - r_{RF})\) is 5\%. What is the highest value of beta for which the company will undertake the project?
TRUE OR FALSE

- If the market risk premium decreases, this means that the investors will require a lower rate of return for holding the market portfolio.

- Suppose that a company’s bonds trade at a value $1150 in the market. If these bonds are paying $40 coupons every 6 months, then the annual required rate on these bonds must be more than 8%.

- Suppose that a project has an IRR of 13%. If the company’s cost of capital is 12%, then this project has a positive NPV for the company.

- Consider two bonds issued by the same company. Both bonds have a maturity of 10 years. Bond A has an annual coupon rate of 10%, and Bond B has an annual coupon rate of 16%. Bond A must have a shorter duration than Bond B.

- Consider two bonds issued by the same company. Both bonds have a coupon rate of 10%. Bond A has a maturity of 10 years. Bond B has a maturity of 5 years. Bond A must have a longer duration than Bond B.

- Consider two bonds both with the same maturity of 10 years. One has a fixed coupon (interest) rate of 5% and the other has a floating coupon (interest) rate of Libor. The one with a fixed coupon rate has a shorter duration.